

Letters to the Editor: Reply

LCA from a Sustainability Perspective

Reply to the 'Letter to the Editor' by K.-H. Robèrt, J. Holmberg and U. Lundqvist

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I do not have any major disagreement with the points made in the above *Reply* by K.-H. Robèrt, J. Holmberg and U. Lundqvist (2000), not least because their comments reflect only some of the points made in my Commentary (UPHAM, 2000). The objective of the Commentary (*ibid*) was to show how The Natural Step (TNS) differs from LCA as refined by the Society for Environmental Toxicology and Chemistry and ISO (ISO/TC 207/SC5 1996), given that several organisations have promoted or used TNS for product/process assessment (NUS UK, 1996), (NUS SERVICES, 1996), (NCBE, 1996) and (Co-Operative Bank, 1999). TNS and LCA are designed for different purposes and should be seen as potential complements, not as potential substitutes. Yet the above users, and TNS UK in its training for businesses (UPHAM, 1999a,b), have viewed TNS as fit for an abbreviated or screening version of LCA's intended role.

To clarify some of the differences between TNS and LCA as conceived by SETAC and ISO (*op cit*):

1. TNS is nominally an educational theory of sustainability designed to be capable of widespread scientific and hence social acceptance (ROBERT *et al*, 1997).
2. To achieve this end, TNS uses the rhetorical method of arguing from an extreme – and hence persuasive – position. It helpfully states general activities that all can agree are unsustainable in the long term, and then infers actions for the short term. These actions (reduced use of persistent material etc.) are typically environmentally and economically beneficial, but they require information and argument external to TNS for their justification. A non-environmental analogy of the structure of TNS's argument is this: 'eat indefinitely and you will be sick - therefore reduce your food intake now'. The inference follows logically only if you have passed or are approaching the capacity of your stomach. Likewise, for consensual reasons, TNS does not debate whether we have or have not passed particular environmental thresholds. This does not invalidate its inferences, but the inferences are not internally supported by TNS reasoning.
3. By implicitly assuming that we have passed critical global environmental thresholds, TNS is revealed as not just an educational theory of sustainability, but also as a set of normative rules. It is implicitly making the precautionary judgement that we have already had an excessive impact. In many respects, this is doubtless so, but the evidence is not contained in TNS reasoning.
4. The above notwithstanding, TNS has been used to infer operational corollaries for product/process assessment, namely to reduce use of non-biodegradable materials, re-

duce spatial encroachment and reduce social inequity. While use of these criteria is preferable to a compliance-only approach to environmental protection, their discriminatory capacity is low relative to more developed LCA checklists (e.g. GRAEDEL and ALLENBY, 1995), LCA software (e.g. Prè Consultants, 1999) and product/process guides based on life cycle analyses (e.g. ANINK *et al*, 1996).

5. In product/process assessment, potentially the most significant contribution of TNS is not its operational 'corollaries', but its normative implications. These are the implied injunctions to cease the extraction and synthesis of persistent material, and to cease encroaching and inequitable behaviour. Although TNS argues from an extreme position, its position is nevertheless correct: natural processes will not be able to sustain indefinite accumulation of persistent and encroaching material. Far-sighted firms prepared to work within the absolute materials budgets that Earth's finite assimilation capacity ultimately implies will find LCA useful as a detailed decision tool, and TNS useful as an over-arching set of norms and educative principles. Hence the conclusion of my Commentary – that TNS is better used as a set of norms to orient LCA, than integrated with LCA at a technical level.

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